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1: Proc Natl Acad Sci U S A 1983
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Chemical synthesis of a gene for human epidermal growth factor urogastrone and its expression in yeast.

Urdea MS, Merryweather JP, Mullenbach GT, Coit D, Heberlein U, Valenzuela P, Barr PJ.

We have chemically synthesized and expressed in yeast a gene coding for human epidermal growth factor (urogastrone), a 53-amino-acid polypeptide that has been shown to promote epithelial cell proliferation and to inhibit gastric acid secretion. The synthetic gene, consisting of 170 base pairs, was designed with yeast-preferred codons and assembled by enzymatic ligation of synthetic fragments produced by phosphoramidite chemistry. The DNA synthesis protocol used allows for facile synthesis of oligonucleotides larger than 50 bases. Yeast cells were transformed with plasmids containing the synthetic gene under control of a yeast glyceraldehyde-3-phosphate dehydrogenase gene promoter and were shown to synthesize a biologically active human epidermal growth factor.

PMID: 6369317 [PubMed - indexed for MEDLINE]

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